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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,747	10/20/2003	Hiroataka Murata	244166US2S CONT	9266

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/687,747	MURATA ET AL.	
	Examiner	Art Unit	
	Regina Liang	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6, 7, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raina (US. PAT. NO. 6,537,427) in view of Kishino et al (US. PAT. NO. 6,249,266 hereinafter Kishino).

As to claim 1, Fig. 1 of Raina discloses an image display apparatus (field emission display) comprising: a vacuum envelope having a first substrate (faceplate 12) and a second substrate (base substrate 22) opposed to each other with a gap; a structure (conductive layer 26, gate material 30) arranged between the first substrate and the second substrate and fixed to at least one of the first and second substrate (the conductive layer 26, gate material 30 fixed to the substrate 22); an image display surface (phosphor layer 16) formed on an inner surface of one of the first and second substrates (the luminescent phosphor layer 16 is formed on an inner surface of the faceplate 12); and a plurality of electron emitting elements (emitter tips 24) which are arranged on an inner surface of the other of the first and second substrates (the emitter tips 24 are arranged on an inner surface of the substrate 22) and emit electrons (electrons 18) toward the image display surface (phosphor layer).

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Raina does not disclose the structure having a thermal expansion coefficient higher than that of the at least one substrate to which the structure is fixed. However, Raina teaches the structure (a conductive layer 26, a gate material 30) comprising metal films, and the base substrate 22 is made of glass (col. 3, lines 31-45). Kishino teaches the metal material has a thermal expansion coefficient different than a glass material (col. 3, lines 16-19, col. 5, lines 53-63). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Raina's structure having a thermal expansion coefficient different than the base substrate so as to position the front and rear plate members in close proximity to each other and with high precision and to prevent damage to the base substrate during the heat treatment. Furthermore, It would have been further obvious to one having ordinary skill in the art at the time the invention was made to modify the structure of Raina as modified by Kishino to have the thermal expansion coefficient higher than the base substrate as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claims 2, 3, 10, 11, Raina as modified by Kishino does not disclose the structure has a thermal expansion coefficient 1.02 to 1.2 or 1.07-1.15 times as high as the thermal expansion coefficient of the base substrate. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structure of Raina as modified by Kishino to have the thermal expansion as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As to claims 4, 7, Raina teaches the structure includes a plate-like grid (gate member 30) located between the first substrate (12) and the second substrate (22) and opposed to the first and second substrate.

As to claim 6, Raina as modified by Kishino does not disclose the structure has a thermal expansion characteristic such as an elongation rate thereof is higher than that of the base substrate at any temperature. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structure of Raina as modified by Kishino to have the thermal expansion coefficient characteristic as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

3. Claims 5, 8, 9, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raina and Kishino as applied to claims 1 and 7 above, and further in view of Itoh et al (US. PAT. NO. 5,899,350 hereinafter Itoh).

As to claim 5, Raina as modified by Kishino does not disclose the structure includes a plurality of support members which are arranged between the first substrate and the second substrate and support the first and second substrates against the atmospheric pressure. However, Fig. 1 of Itoh teaches the structure (gate electrode 10) including a plurality of support members (9, 15) which are arranged between the first substrate (2) and the second substrate (3) and support the first and second substrates against the atmospheric pressure (col. 3, lines 7-8 of Itoh). Thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structure of Raina as modified by Kishino to have a plurality of support

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members as taught by Itoh since this provides a hermetic container supporting member that can provide its improved stress resistance and its improved buckling strength and can stably maintain the space between an anode substrate and a cathode substrate and can prevent deformation of the container by the atmospheric pressure (col. 3, lines 2-10 of Itoh).

As to claim 8, Itoh teaches the support members (9, 15) abutting against the rear substrate (3). Raina as modified by Kishino and Itoh does not disclose the support members having a thermal expansion coefficient higher than that of the rear substrate. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support members of Raina as modified by Kishino to have the thermal expansion coefficient as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 9, Fig. 1 of Itoh teaches the support members (9, 15) are fixed to the grid (10).

As to claim 12, Fig. 1 of Itoh teaches the grid (10) is provided with a plurality of joints fixed to the rear substrate (3) through pedestals (9).

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raina, Kishino, Itoh as applied to claim 12 above, and further in view of Tsuburaya et al (US. PAT. NO. 6,407,500 hereinafter Tsuburaya).

Raina as modified by Kishino and Itoh does not disclose a power supply terminal provided on an outer surface of the rear substrate, and wherein the grid has electrical conductivity and is connected electrically to the power supply terminal through at least on the


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pedestals and a through hole in the rear substrate. However, Fig. 7 of Tsuburaya teaches the GT (grid) is electrically connected to a power supply terminal (Va, Vgk), Fig. 1a, 1b, 2, 5a of Tsuburaya teaches the power supply terminal (through lead 5) provided on an outer surface of the rear substrate (1), and the electrically connection is through at least on the pedestals and a through hole in the rear substrate. Thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the display apparatus of Raina as modified by Kishino and Itoh to have a power supply terminal connection as taught by Tsuburaya since resulting in stable electrical connection such that a high voltage can be effectively applied to the electrode connection with high reliability, without the occurrence of self-discharging (col. 6, lines 36-37 and 53-55 of Tsuburaya).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard, can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Regina Liang
Primary Examiner
Art Unit 2674

1/20/06